



An Evaluation of Post-Operative Opioid Prescribing Patterns Compared to Recent Procedure-Specific Recommendations

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INTRODUCTION

- JAMA Surgery* published a retrospective, multi-site, population-based analysis in 2019 that evaluated opioid prescribing and consumption patterns for patients undergoing 12 different surgical procedures.¹
- Results prompted the Opioid Prescribing Engagement Network (OPEN) to publish a set of recommendations on the number of opioid tablets to be prescribed after specific surgical procedures for opioid-naïve patients.²
- OPEN recommends up to 20 tablets after cesarean section (C-section), 30 tablets after total hip arthroplasty (THA) and 50 tablets after total knee arthroplasty (TKA), 10 tablets after appendectomy, hernia repair, and cholecystectomy, 15 tablets after hysterectomy, 5 tablets after lumpectomy, and 20 tablets after mastectomy,² which are common surgical procedures at Eskenazi Health.

OBJECTIVE

- The purpose of this study was to evaluate Eskenazi Health's opioid prescribing patterns following nine surgical procedures (C-section, THA, TKA, appendectomy, hernia repair, cholecystectomy, hysterectomy, lumpectomy, and mastectomy) compared to the published recommendations.

METHODS

Study Design

- Retrospective chart review utilizing electronic health record (EHR)
- Patients identified based on surgery type and date of surgery as outlined below

Table 1. Study Period

Type of Surgery	Date of Surgery
C-section	03/01/2019 – 06/06/2019
THA and TKA	12/01/2018 – 06/06/2019
Appendectomy	11/01/2018 – 06/30/2019
Hernia repair	10/01/2018 – 05/01/2019
Cholecystectomy	12/01/2018 – 04/01/2019
Hysterectomy	06/01/2018 – 05/31/2019
Simple mastectomy	06/01/2018 – 05/31/2019
Lumpectomy	10/01/2018 – 08/31/2019

Data Collection

- Patient medical record numbers used to search EHR for demographic information and opioid prescription
- INSPECT (Indiana's prescription drug monitoring program) used to obtain fill data and determine if opioid tolerant (defined as patient who filled an opioid within last 90 days) or opioid naïve

Statistical Analysis (using MiniTab 16.0)

- Continuous, non-parametric data analyzed using Mann-Whitney U
- Dichotomous variables analyzed using Fisher's exact or Chi-square

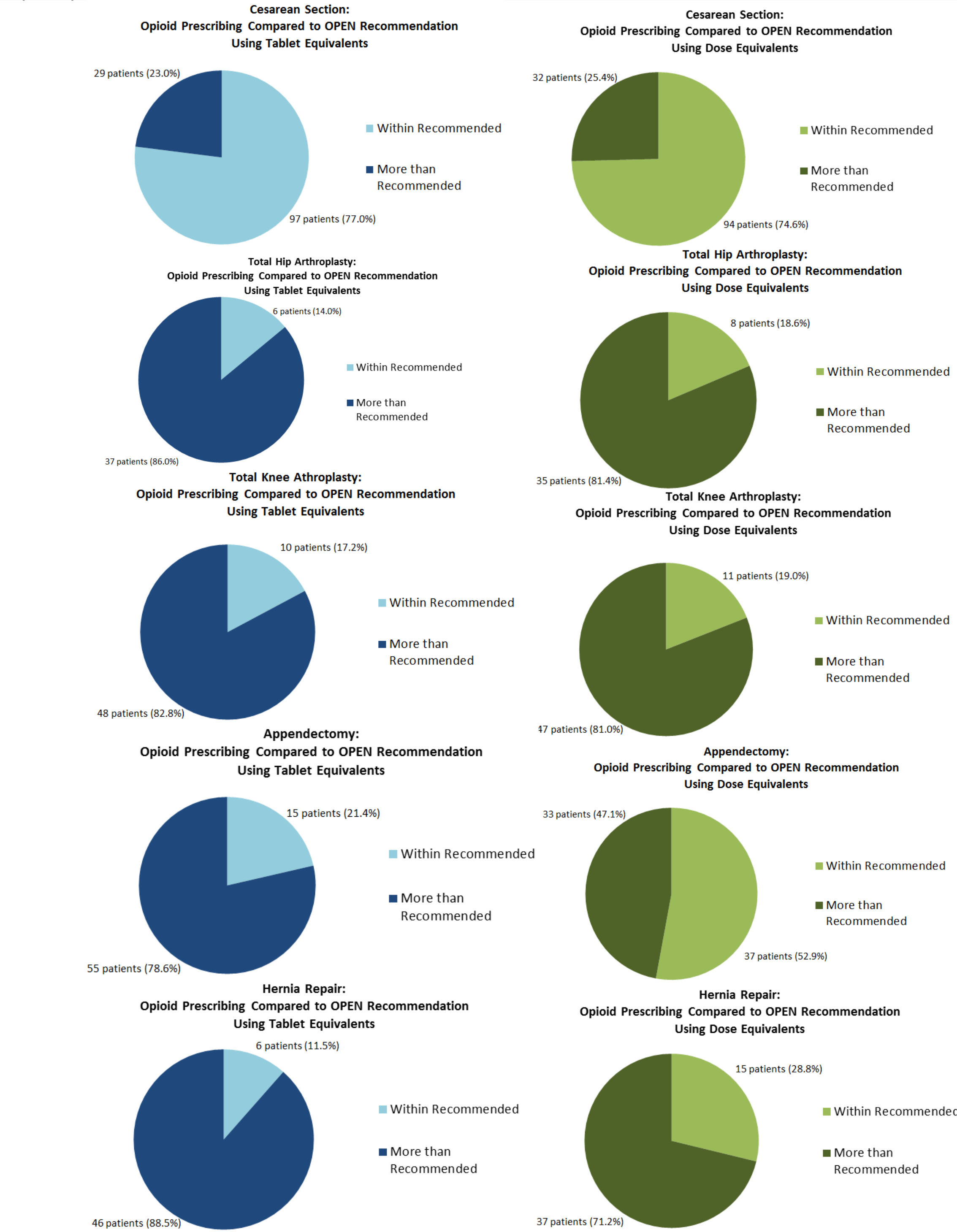
RESULTS

- Primary outcome was number of tablet equivalents prescribed over OPEN recommendations as shown in the figures below.
- Secondary outcomes included dose equivalents prescribed over OPEN recommendations and dose equivalents prescribed per day over 5 days.
- Subgroup analysis conducted comparing prescribing differences between opioid-naïve and opioid-tolerant patients.

Table 2. Patient Characteristics

	n	Age*	Male	History of substance abuse	Concurrent benzo use
C-section	126	31 (25-35)	0 (0.0%)	9 (7.1%)	0 (0.0%)
THA	43	60 (56-68)	18 (41.9%)	3 (7.0%)	4 (9.3%)
TKA	58	58 (54-66)	16 (27.6%)	8 (13.8%)	6 (10.3%)
Appendectomy	70	33 (25-45)	44 (62.0 %)	3 (4.2 %)	0 (0.0 %)
Hernia repair	52	53 (37-59)	48 (92.3%)	7 (7.7%)	0 (0.0%)
Cholecystectomy	68	38 (30-47)	16 (23.5%)	7 (10.2%)	1 (1.5%)
Hysterectomy	63	43 (40-49)	0 (0.0%)	4 (6.3%)	0 (0.0%)
Simple mastectomy	42	49 (34-59)	4 (9.5%)	4 (9.5%)	1 (2.3%)
Lumpectomy	42	64 (55-68)	0 (0.0%)	1 (2.3%)	0 (0.0%)

*Median (IQR). All other data reported as n (%).



RESULTS (cont.)

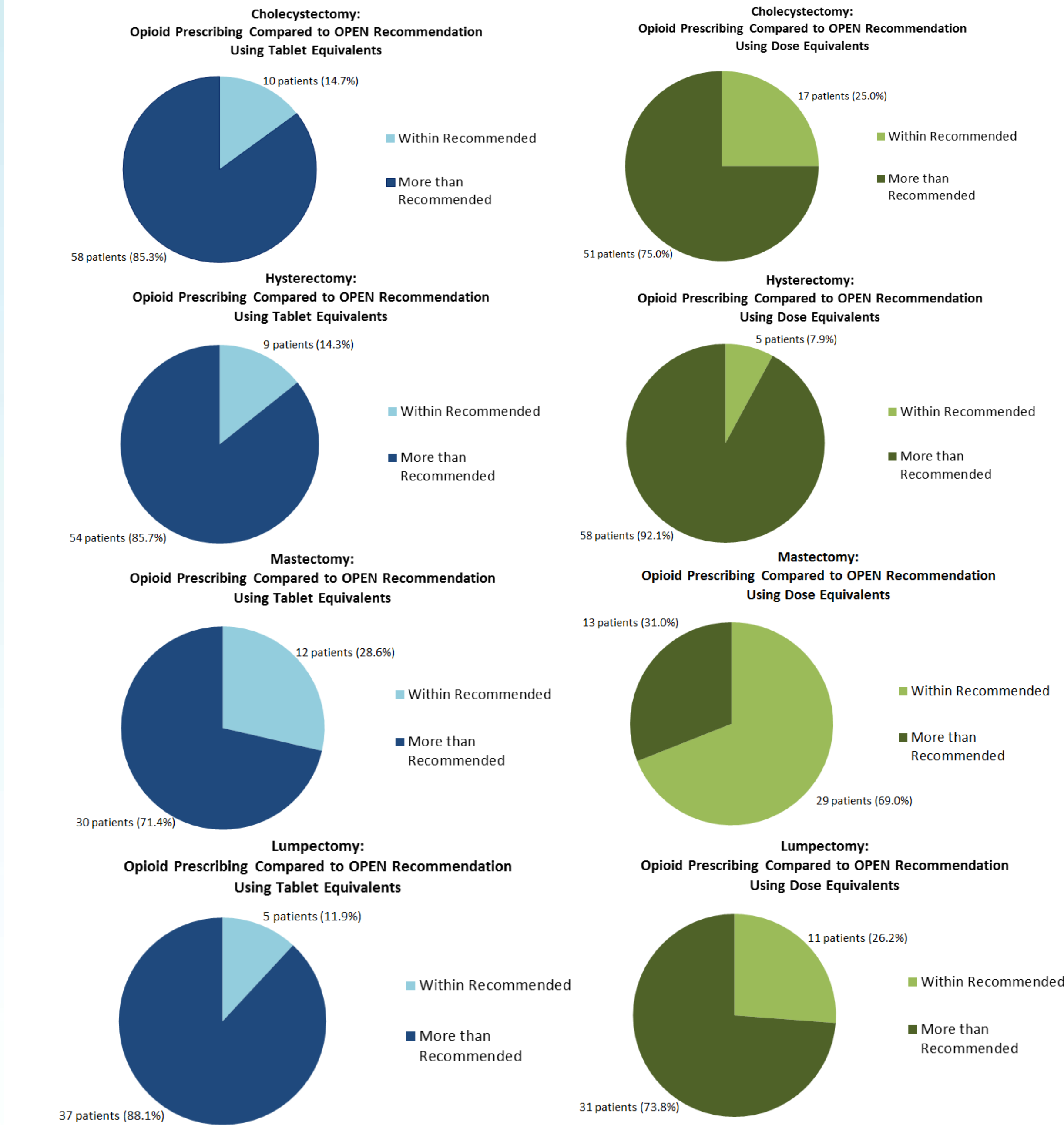


Table 3. Subgroup Analysis Comparing Opioid-Tolerant versus Naïve Patients (All Surgeries)

	Opioid-Naïve (n = 444)	Opioid-Tolerant (n = 120)	p value
Median (IQR) tablet equivalents	20 (2,20)	42 (5,42)	< 0.001
Median (IQR) MME equivalents	100 (10,100)	315 (30,315)	< 0.001
Median (IQR) MME/day	20 (2,20)	63 (6,63)	< 0.001

CONCLUSIONS

- Majority of patients were over-prescribed opioid tablets in all surgeries assessed and dose equivalents in all surgeries except appendectomy and mastectomy compared to OPEN recommendations.
- Opioid-naïve and opioid-tolerant patient comparisons showed a statistically significant difference between the total number of tablet equivalents prescribed.
- Our results support the need for internal opioid prescribing guidelines following surgery. We plan to use these results to guide interventions and educational initiatives to improve our prescribing practices and follow published recommendations.

REFERENCES

- Howard R, Fry B, Gunaseelan V, et al. Opioid prescribing and consumption after surgery in Michigan. *JAMA Surg.* 2019;154(1):1-8.
- Prescribing recommendations. Opioid Prescribing Recommendations for Opioid-naïve Patients website. <https://www.opioidprescribing.info/>. Accessed April 19, 2020.

DISCLOSURES

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of the presentation.